INTERNET FINANCE: DIGITAL CURRENCIES AND ALTERNATIVE FINANCE LIBERATING THE CAPITAL MARKETS

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Abstract

This article discusses how the sudden shift in policy reform and innovation has the potential to liberate the financial markets. The economic potential of internet finance is beginning to take hold across the capital markets as industries like Peer – to – Peer Lending, Equity and Debt based Crowdfunding and virtual currencies and cryptocurrencies which are types of digital currency are quickly transforming the way businesses are being financed. From borrowing and lending, buying and selling securities, to conducting wire transfers internationally, these innovations are creating a new class and generation of investors will source investments opportunities. Helping institutions and governments assess risks and manage performance in order to determine where to deploy capital; and showing signs of lessening the inequality gap. Following the neolithic agricultural revolution and the industrial revolution, this new revolution will enable more people to access financial services in less traditional ways, especially the unbanked world with its huge potential. These new financial opportunities, such as peer – to - peer (P2P) lending, will be discussed and examined, and we will stress how they can allow people to bypass current barriers in the global economy. We conclude by arguing that all these developments, energized by the efforts of innovators and entrepreneurs, have the potential to radically transform the world in which we live, while promoting the core values of industrialized societies including democracy, capital formation, sustainability, and equality without solely relying on tax increases.

Key Words: Internet Finance, Digital Currencies, Capital Markets, Alternative Finance

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Introduction

This article will first discuss the issues of traditional means of funding and the impact of that on small businesses and the "unbanked." This is followed by a discussion on the new legislation and how it affects banking and capital creation. Finally, I will discuss emergent technologies and alternative funding mechanisms, such as peer-to-peer lending and virtual and crypto currencies.

The way we do business is being revolutionized. There is decreasing trust of traditional banks, mainly due to the aftershocks of the 2008 financial crisis and the string of scandals that has affected banks reputation since then, including the LIBOR interest rate rigging scandal, money laundering, high risk lending and tax evasion. As access to traditional funding becomes more elusive and as more and more people join the ranks of the "unbanked," it is clear that new ways of creating business, job and capital, in a more equitable way must be found. And indeed, an economic revolution is underway, which is radically transforming the financial ecosystem, via emerging technologies, changing legislation, and alternative funding mechanisms.

Barriers in the Global Economy

Kendall and Voorhies (2014) note that in some countries, "the most important buffers against crippling financial setbacks are financial tools such as personal savings, insurance, credit, or cash transfers from family and friends. Yet these are rarely available because most of the world's poor lack access to even the most basic banking services." In addition, Webber (2014) notes that the World Bank calculates that about 75% "of the world's poor is unbanked," amounting to roughly 2.5 billion people who are unable to access any banking services. These unbanked people are often reliant on "a patchwork of informal and often precarious arrangements to manage their financial lives." [Kendall and Voorhies (2014)], and furthermore they have no access to "private sector financing," which could help to secure "higher economic growth and productivity" [Webber (2014)]. This is such an important issue that Christine Lagarde (2014), head of the International Monetary Fund recently stated that because of "… today's increasingly interconnected world, linked by ever growing financial flows, […it] is an economic and a moral imperative that we reach them and empower them" (see also Webber (2014)).

However, "technology and new business models [are beginning to shape] different types of business finance and funding" available across the globe [Vistage 2013], especially in developing countries. For instance, 75% of Kenyans now have mobile banking services, while in Brazil basic banking transactions are now available at local shops [Webber (2014)].

But while the 'unbanked' are increasingly being served in developing countries, Webber (2014) notes that inclusion in traditional banking services is becoming more problematic in the EU and US: The Alliance for Financial Inclusion, a global network of policymakers, reported that there are "58 million people in the EU without bank access and another 92 million are 'underserved' – having access, say, to just one bank [while in] the US, nearly 10 million households are believed to be outside of the formal banking system."

Increasingly, the wealthy are being relied upon to redirect investment dollars toward emerging growth companies through different types of incentives and new funding models, however understanding the new range of financial services and means of access will be 'challenging" but important for all involved [Vistage (2013)]. In particular, understanding the important differences between the huge range of finance and funding options available – from bank lending to crowd-sourced funding to microfinance to private equity and venture capital – is a challenge, but will be fundamental for business leaders, emerging growth companies and investors as they consider their place in the economic equation. At the same time, as I have written in an earlier paper, it is also important that average working class individuals are also given the chance to take advantage of these new investment and financing opportunities [Wales (2014)].

Maney (2013) says that the world is undergoing a third revolution (following on from the Neolithic Agricultural Revolution and the Industrial Revolution), and this is a very apt description. Humankind's collective knowledge is being aggregated and disseminated and is increasingly allowing complete access to the surge of universal information and we all have the ability to connect with almost everyone on the planet [Maney (2013)]. Democratization of the capital markets with financial and investment products such as securities based crowdfunding, peer-to-peer lending (P2P), Bitcoin and more -- in parallel -- with technological advances on the Internet, social media, and the smartphone have all equally revolutionized the way that we do things. This new revolution, started in the developing world, will enable more people to access financial services in less traditional ways. These new financial opportunities, such as peer to peer (P2P) lending and bitcoin will now be discussed in turn.

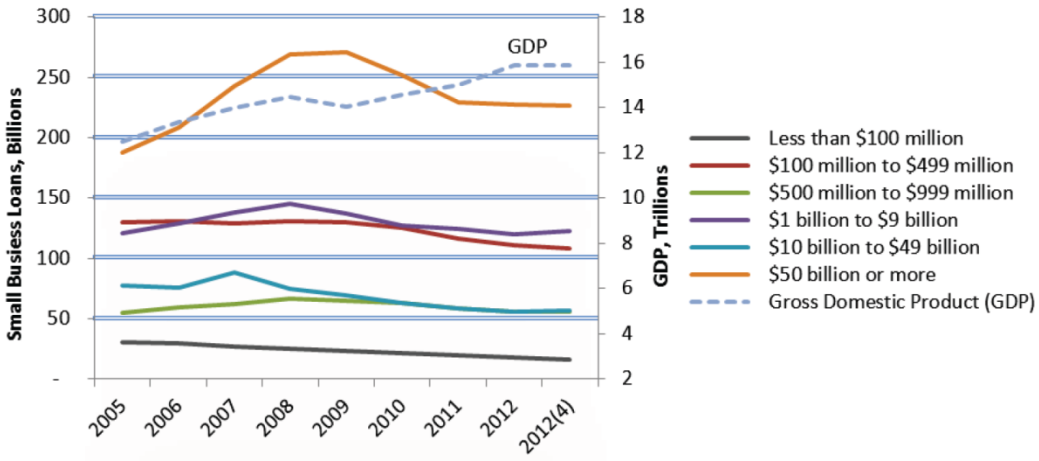
Dawn of a New Era: P2P and the Crowd

In recent years, peer-to-peer lending has attracted borrowers and lenders that had been displaced by the banks. The "new normal' in this sea of change is leveraging networks of social capital, better known as "*the crowd*" to infuse the money needed into a company in order to start, grow or sustain its practice.

Traditional Lenders: the Banks

According to the Small Business Administration, recovering is continuing in both "borrowing and lending conditions", although recovery is slower for smaller firms, as illustrated in Figure 2 [OASBA (2013)].

Figure 2. Total values of small business loans by depository institution size and gross domestic product, June 2005 – June 2012 [OASBA (2013)]



Source: U.S. Small Business Administration, Office of Advocacy, based on Call Reports from the Federal Deposit Insurance Corporation.

GDP and other indicators are trending upwards, however the "small firm loan markets remains stagnant, despite low interest rates," which have remained unchanged since January 2009 at 3.25% [OASBA (2013)]

Unfortunately, businesses have experienced a downturn in their financial position, which has made securing funds from banks very difficult during a time of increasing financial regulation [SBFI (2010)]. This is reflected in a number of studies into small business lending over the last few years. For instance, as was noted in NYFRB's (2012) Small business borrowers poll, "[m]ore than three years into the economic recovery, the number of small business loans stands at three-quarters of its 2008 peak. National data show that the number of small business loans – defined as $1 million or less – declined by 4.7 percent in 2011" While lenders report easing credit standards for large and medium-size firms, loan standards for small businesses have not changed in the past five consecutive years according to the Small Business Administration, Office of Advocacy [OASBA (2013)].

The New York Federal Reserve regularly surveys small business owners regarding "their needs and experiences," in order to gauge the credit environment, and in the. April/May 2012 survey, 544 small businesses participated [NYFRB (2012)]. The feedback from the survey indicates that "the recent drop in lending may be due in part to weaker firms self-selecting out of the credit market": about two-thirds of the participants did not apply for any financing, and half of these respondents did not do so because they feared their applications would be declined [NYFRB (2012)]. Participants also reported "higher denial rates" for microloans than for loans of higher amounts, suggesting that the demand for microloans is there [NYFRB (2012)].

Oxfam's (2014) report into global economic inequality stated that a mere 1% of the global population controls almost half of the global wealth. Furthermore, this 1% owns $110 trillion which is 65 times the combined wealth of the "poorest 3.5 billion people," the 85 richest people own the same as the combined total wealth of the bottom 50% of the global population, and 70% of the population reside in countries where "economic inequality has increased in the last 30 years" [Oxfam (2014)]. These statistics emphasize the fact that there is a disproportionate amount of capital not making its way into the hands of "the crowd" as well as the difficulty of gaining access to that capital.

"In the US, where the gap between rich and poor has grown at a faster rate than any other developed country, the top 1% percent captured 95% of post-recession growth (since 2009), while 90% of Americans became poorer." [Neuman (2014); Oxfam (2014)]

Professor Thomas Piketty (2014) points out that capitalism has a inherent tendency toward increasing inequality, because real estate, stocks, and other assets disproportionately held by a few wealthy individuals/families (i.e., capital) rise faster than the general economy (growth).

History illustrates that during periods of radical change, it took two world wars to shift the economy [Piketty (2014)]. Now inequality is rising back to pre-1915 war levels. According to Piketty (2014), this should be counteracted via global tax on wealth or similar measures.While here we agree on the inequality rise, I submit that wealth inequality could improve naturally through advances in technology and the democratization of capital under the umbrella of "internet finance" rather than through fiscal policy alone.

P2P: Marketplace Lenders

Globally, peer – to – peer platforms originated an estimated $70 billion in 2014. Yet, these loans only make up a small portion of the total number of small business loans [Eavis (2014)]. In the first quarter of 2014, banks lent a total of $291 billion to small businesses, according to FDIC figures, while in contrast, US P2P lending platform, Prosper Marketplace originated over $3 billion of loans on platform as of 1Q2015. As of the 2014, Peer – to Peer Lending (Debt) originated $11 billion in loans in the U.S., $56 billion in China and $5.6 billion in Europe in 2014, respectively. These numbers are projected to double by the end of 2015.

Market Making In a New Way

Capital market structure, as we know it for big businesses and sophisticated investors, is rapidly becoming a playing field on which individuals from all walks of life will have the ability to participate.

Access to capital – the lifeblood of business – is revitalizing the markets, which drives liquidity. Companies benefit from access to larger pools of investors because they can obtain finance for expansion at cheaper rates and due to that expansion, there are more job opportunities for workers, leading to a win-win situation. Investors benefit from transparency of choice, less sales pressure from investment advisors, and the freedom to invest towards the future.

The enactment of certain regulatory reforms such as the Jumpstart Our Business Startups Act (JOBS Act) framework ensures that no individual will be denied the right to partake in an economic society or to aspire to business ownership as opposed to just having a job.. Web 3.0 offers new ways to make financing available to more people, thereby addressing some of the most troubling financial statistics. A capital formation (i.e., savings, finance, and investment) using mechanism such as securities-based crowdfunding, peer-to-peer lending (P2P), and

Bitcoin illustrates true potential of a liberated marketplace.

Historically, market makers were firms "that [stood] ready to buy and sell securities on a regular and continuous basis at a publicly quoted price" [SEC (n.d.)]. However, in the new financial landscape, things have changed, with advances in:

1. Peer-to-Peer lending
2. Regulatory reform such as lifting the ban on general solicitation and advertising through Regulation D, Rule 506(c), (Title II) or Regulation Crowdfunding (Title III), and Regulation A+ transactions performed using these provisions could be considered "private public offerings" because they are private offerings that must look public through certain disclosures deemed by the Commission.
3. Bitcoin, a cyber-currency, allows for P2P sales and commissions, "meaning that the market itself decides directly what the spread should be" [Bots (n.d.)].

These exempt offerings differ from traditional offerings by targeting groups of individuals for smaller investments rather than seeking financing from one or two large investors. This new way of transacting in the marketplace might suggest that the "market maker" is rapidly becoming the "crowd," shifting the buy and sell features away from the institutions.

Benefits of Alternative Funding Sources

The following Table summarizes the problems and opportunities posed by alternative funding sources.

Table 1. Key Benefits for Investors and Issuers

Reduced Cost: New technology cuts out the layers of people that stymie the deal. This reduces the amount of time required to originate and underwrite a business or project, reducing overall cost to capital.	**Social Capital Network:** The adhesive that binds this new marketplace together. Understanding the value of your network allows issuers to tap into an investor pool that creates exposure for product development, brand awareness and ultimately, financing.
Access to Market Opportunities: Until securities laws changed with the JOBS Act and other global initiatives, there have been few sources available to raise capital. Securities based crowdfunding platforms, peer-to-peer (P2P) platforms and Bitcoin exchanges scale across the globe, matching buyers to sellers or investors to issuers, thus creating a blue ocean for capital formation.	**The problem in the market:** identifying the **'**best in breed and class', which often can only be discovered through due diligence, transparency and digestible information that the marketplace can share and leverage to make informed investing decisions. **Solution:** CrowdBureau, the Morningstar for the Alternative Crowd Finance Industry[6]. Solving this challenge by providing a centralized hub of ***rated information, investors, companies, and funds*** for the marketplace, enabling the first true gateway for cross border transparency and information.
Nimble and Efficient: Companies can access funding across the entire capital stack for a wide variety of industries. Creative terms often lead to an attractive alliance between the buyers and sellers, which is often lacking from traditional lenders or equity providers.	

Source: Wales Capital, a leading strategy, risk management, and regulatory compliance consulting firm.

[6] The author is the CEO of CrowdBureau

Technology Transforming Paradigms

Investors and companies attracted to this re-regulated marketplace can embrace capital formation with the emergence of Web 3.0; providing the opportunity of creating societies that can yield self-enrichment regardless of the region of the world in which they exist. We are now encroaching on the Internet of Smart Objects. The first phase of the Internet was about connecting machines and the second phase was about connecting people.

Web 3.0 is about bridging the gap between the two.

In other words, connecting the physical and virtual worlds by turning everyday devices into smart objects and linking behaviors to investment opportunities through crowd finance -- creating near frictionless capitalism.

Primary Market

In New Issue Market (NIM), or primary market, trading securities was typically conducted face-to-face, and the Nasdaq OTC market for stocks was one of the first markets where technology replaced this physical interaction [Hendershott (2003)]. Furthermore, "the functioning of the primary market is crucial for both the capital market and economy as it is the place where capital formation takes place" [FMW (2013)].

Volatility of the market will continue. But for buyers and sellers more comfortable with some risks, the gradual shift in adopting new mechanisms to access capital through a new ecosystem of regulatory reform, Web 3.0, and mobile are converging to create the next big economic frontier.

A new operating model for the financial markets is being made possible through:

- Connecting buyers and sellers of debt and equity securities via web enabled funding platforms, which are making computing and communications between global social networks possible for order routing;
- Broadening the reach of disseminating offerings, quote and trade information;
- Allowing transparency of choice with embedded due diligence, risk management and compliance protocols;
- Supplanting direct in-person contact with innovative financial, digital and social media technologies interlinked via Web 3.0.

In the case of Bitcoin, technology, such as the block-chain, is coupled with online networks reducing the friction to access the market, not only in trading but also in consumerism. This novel technology is further breaking down the barriers to capital while reducing costs to end users, lowering the obstacles to entry for new competitors, "enabling market data transmission to a much larger group of participants" [Hendershott (2003)], and making the Crowd more efficient and accessible.

The growth in online funding and "trade execution systems on an international basis has been explosive" [Hendershott (2003)], and new primary markets are becoming inclusive via the Web for the public private placements.

Table 2. Innovative Technology Solutions

Bitcoin Exchanges	**Peer-to-peer (P2P)**	**Funding Platforms**	**Third Party Vendors**
Australia's Igot is positioned to expand operations across 40 countries including the Middle East, Africa and the European Union over the coming year.	Lending companies like Prosper Marketplace, Lending Club are serving as exchanges that match borrowers and lenders together online.	CrowdCube, Circleup, FundingCircle, WeFunder, FundRise, SeedInvest and Propellr for the public private placements across consumer products, real estate, equity and debt funding.	CrowdBureau, CrowdCheck, Folio, Crowdentials, Orchard, Wales Capital, are some firms serving as the infrastructure "refineries" for the ecology of the new capital market.

Source: Wales Capital, JOBS Act and Crowd Finance Advisory Management Consulting Firm

This seismic shift in buying and selling equity, debt and other consumer products is having a cascading effect across the global capital markets. The Igot exchange, for example, offers customers access to a full menu of exchange features such as: 1) remittances; 2) the ability to deposit and withdraw from their local banks; and 3) bill payment services.

Prosper Marketplace and Lending Club are paving the way for borrowers and investors (lenders) to avoid the overly burdensome requirements from banks to obtain funding or to earn some meaningful level of interest rate return for money that is sitting on the sidelines.

Secondary Market

Traditionally, the secondary market is defined as "that part of the capital market that deals with the securities that are already issued in the primary market" [FMW (2013)]. However, up until 2012, the

sluggish investment into start-up and emerging growth companies and the decrease in companies listing on the secondary market, the JOBS Act has also paved the way for new secondary market mechanism to edge its way into the main stream.

As more and more companies are putting off going public for longer, requiring an "efficient means to access liquidity for employees and investors," Nasdaq OMX and Sharespost have forged a joint venture, which combines the Nasdaq old-style market and operating experience with Sharepost's cutting edge web-based platform [NASDAQ (2013)]. Other firms taking advantage of this trend is IssuWorks and OTC QBX. It is expected that more secondary exchanges fashioned in this new style of online buying and selling will proliferate once Titles II, III and IV are live, bringing the retail investor, "Mom and Pop," into the fold of the capital markets. What these types of solutions offer is a complete, end-to-end solution that will enable a private company to control the marketplace for its shares.

The traditional method of secondary market exchanges will be turned on its heels, because the value of a particular stock may vary from that of the face value and because fluctuating interest rates will impact the value of the resale of the securities [FMW (2013)]. However, this will not necessarily be the case with the new breed secondary market exchanges, such as the OTC and IssuWorks, who will be factoring in the voice of the retail investor, i.e., the "Crowd."

Mobile banking

Mobile banking is becoming increasingly popular and its applications have the "potential to encourage financial discipline in even more effective ways" [Kendall and Voorhies (2014)] Mobile banking has three advantages over traditional banking models, which can also be translated for primary and secondary markets [Kendall and Voorhies (2014)]:

- Mobile transactions are virtually free. Counter services at financial institutions make up most of the routine bank costs, however, with mobile banking, the same transactions can be made with little or no cost to the financial institutions or mobile service providers, and by extension those servicing transactions within the primary and secondary markets.
- These mobile transactions create huge amounts of data, "which banks and other providers can use to develop more profitable servers and even substitute for traditional credit scores (which can be hard for those without formal records or financial histories to obtain)". Over time, there will be an emergence of mobile ratings agencies that will assist entrepreneurs and investors to overcome this hurdle in the primary and secondary markets.
- Mobile platforms operate in real time, allowing instantaneous account information, messaging and new services sign up.

About 2.5 billion people live on less that $2 a day and 77% of the world's poor population do not have access to savings accounts and other basic financial services [Kendall and Voorhies (2014)]. This deficient marketplace is ripe for innovative technologies to provide access to financial services that could ultimately shift the financial tide.

A further important aspect related to technology transforming paradigms is given by digital currencies. We feel this is so important as to deserve a special analysis, to which we devote the remaining part of this article, before drawing general conclusions.

Digital Currency: the case of virtual and crypto currencies

Digital currency businesses are now proliferating with $350 million invested by venture capitalist in 2014 and $230 million invested the year prior. For a moment, let's explore how the crypto currency, Bitcoin could transform financial markets, by serving as a catalyst for capital formation, especially in underserved regions like Africa and Haiti, which are in dire need of banking facilities and access to capital and technology like blockchain is beginning to serve as the backbone infrastructure for the movement of currencies.

The marketplace learned about Bitcoin in 2008 when Satoshi Nakamoto sent out a paper [Nakamoto (2008)] on a cryptography mailing list, with "the first block of Bitcoin [being] mined in January 2009" [Vaishampayan (2014)].

Bitcoin is currency that can be traded internationally and anonymously, and because it is a decentralized digital currency, there are no fees, government regulation, and oversight by banks and government-backed securities [Pagliery (2014a)].

Five years after its introduction, Bitcoin is among the most studied and traded financial products. Bitcoin payments occur peer-to-peer with no administrator and this cryptocurrency is now a popular form of digital currency. A number of top investors support this digital currency (including, for example, Marc Andreessen and the Winklevoss twins). Merchants see Bitcoin with favor because of its lower fees when compared with credit cards, and the fact that fees are paid by the purchaser and not by the vendor. However, Bitcoin has also been quite volatile so far and has been subject to intense scrutiny by governments.

B Indeed, last year the bitcoin exchange, Mt. Gox, collapsed, which raised questions regarding "the security of investing in a virtual currency that isn't regulated by governments" [Vaishampayan (2014)]. However, other players, such as SecondMarket, created a new, and more secure, bitcoin exchange and launched a Bitcoin Investment Trust. .

There is an excellent and potentially revolutionary opportunity to incorporate cryptocurrencies like Bitcoin into products such as crowdfunding platforms and mobile-enabled platforms that could serve the unbanked, underserved, and the emerging middle class, who represent well over 2 billion people worldwide. $90 billion a year is spent by this population on alternative services such as check cashers and payday loans [Schutte (2014)] and they struggle to obtain the financing, beyond limited microfinance opportunities, to create businesses. Creating value for this segment of the population could be very exciting if social capital and technology are leveraged properly.

Bitcoin could be used for remittances, liquidity access to cash, and credit for frontier and emerging countries. A press release from the World Bank (2014) states:

"This year's remittance flows to developing countries will be an increase of 7.8% over the 2013 volume of $404 billion, rising to $516 billion in 2016. Global remittances, including those to high-income countries, are estimated at $581 billion this year, from $542 billion in 2013, rising to $681 billion in 2016."

However, even though some progress is being made, much more must be done. For instance, in sub-Saharan Africa, "remittance fees remain stubbornly high, hovering 12%" [World Bank (2014)]. Furthermore, developing countries such as Gambia, Ghana and Venezuela are in challenging positions due to the lack of local infrastructure to support reducing outward exchange controls [World Bank (2014)]. The so-called Diaspora, mainly consisting of migrant workers from emerging and frontier countries sending money back home make up a substantial portion of the remittances market. The diaspora spends upwards of $3.5 billion in remittance fees, which equates to 8.14% on average per transaction when sending money back home to friends and family [Schutte (2014)], and over the course of the last 12 months the average cost to send money decreased by .7%, given the year prior transaction fees were 9.1%.

On Bitcoin Regulations

Since 2009, a question that was not fully addressed is whether or not Bitcoin should (or could) be regulated. On April 6, 2015, the New York Department of Financial Services released a 44-page document, which amounts to a framework for "virtual currency" businesses to operate in the State of New York. Ironically, the very same Benjamin Lawsky, the former Director of the New York Department of Financial Services, who led the efforts to draft rules for "BitLicenses" over the summer of 2014 [Rizzo (2014)] announced plans to leave the [NYDFS] to create a consulting firm which will help companies deal within the regulations now in place for Bitcoin. To some degree, this is the first step in legitimizing Bitcoin as form of currency, and a "giant leap away from the, semi-anonymous, free-for-all that currently defines the independent digital currency" [Pagliery (2014b)].

Currently, central banks do not issue nor regulate Bitcoin, yet the public, which includes exchanges, trading platforms, e-wallet providers, and inventors and lay individuals, can transact with it as a means of payment [EBA (2014)].

Benefits of Bitcoin (and other virtual currencies) include "reduced transaction costs, faster transaction speed and financial inclusion" [EBA (2014)]. But, as discussed above, Bitcoin is not without risk: the currency's value has fluctuated wildly since inception, and $400 million suddenly disappeared overnight with the fall of Mt.Gox, a Bitcoin exchange based in Tokyo, Japan [Vigna (2014a)]. Mt. Gox was launched in July 2010, and by 2013 were "handling 70% of all Bitcoin transactions" [Vigna (2014a)] Mt. Gox, discontinued trading, shutdown their website and exchange service and filed for bankruptcy protection from creditors in February 2014 while seeking a buyer [McLannahan (2014)].

However, despite these problems, Bitcoin could have a positive economic impact as related to creating a free market, "frictionless capitalism."

Consumers and Vendors

Bitcoin remains a concern with regards to illegal activities. For instance, in October 2013, the FBI shut down the online black market, the Silk Road, seizing 144,000 Bitcoins worth $28.5 million from Ross Ulbricht, the convicted founder and operator of online black market Silk Road, who sentenced to life in prison in May 2015 after being found guilty of narcotics and computer hacking charges in February. [Greenberg (2013), BBC (2015)]. However, despite this, the US is generally favorable towards Bitcoin compared with other governments. In China for instance, there are restrictions in place for buying bitcoins with yuan and Bitcoin exchanges cannot hold bank accounts.

Others countries are even more vigilant. The European Banking Authority (EBA) had already warned consumers that would be unprotected if they traded with crypto-currencies, but now it has followed this up with a "don't-touch warning to banks," [Chrigwin and Sharwood (2014)]. EBA's announcement stated that it had found over 70 risks "that apply to users, banks, enforcement of money-laundering laws, and payments in fiat currencies" [Chirgwin and Sharwood (2014); EBA (2014)]. However, in a marked shift June 2014, the UK regulator, the Financial Conduct Authority, Chief Executive Martin Wheatley announced Project Innovate, a fast track initiative to help support finance industry innovation, setting the goal for "an FCA that

creates room for the brightest and most innovative companies to enter the sector".

This prior outcry seemed to be of the spirit to block the creation of free capital markets and undermined the value created in developing a decentralized network that would spur Bitcoin's growth.

In Wheatley's address, he reflected on three questions: (1) How does the FCA encourage innovation in the financial service market? (2) Does it do enough to promote competition and create room for new entrants into the market, particularly those with novel business models? (3) Does FCA regulation more broadly serve the needs of innovative businesses? Quite rightly, he recognized several developments as having "transformed finance in improbable timescales" among them virtual currencies, crowd funding and peer-to-peer.

Today, the central banks manipulate and control the money supply in all countries. In part, this is what spurred the worst economic recession in our lifetime. Digital currencies such as Bitcoin move away from the centralized model and have the potential to empower individuals to manage and create wealth autonomously.

Crowdfunding Bitcoin

"New decentralized crowdfunding" platforms are emerging that will "support Bitcoin transactions and could lead to a reshaping of the peer-to-peer finance landscape" [Higgins (2014)]. One such platform is called Lighthouse. Raising capital on this innovative platform will function similarly to existing donation, rewards equity and debt-based crowdfunding platforms that bring buyers and sellers together in a secure manner. The technology behind Lighthouse will resemble the Android wallet app and is expected to provide the market with a lightweight, encrypted wallet [Higgins (2014)]. In addition to serving as a crowdfunding platform for projects and businesses, Lighthouse will try to capitalize on the platform by building advanced features and services for the public marketplace.

Some Operational Highlights: Features and Functions

Some Bitcoin models, such as Lighthouse, will use similar or existing standards and best practices for investor protections through the funding cycle by ensuring that no money [Bitcoin] transfers hands to the issuers until campaigns are fully funded that are leveraged under the JOBS Act for registered funding platforms for Title III. It will use the transaction database that links all computers (nodes) together via the block chain. Funds will remain in segregated accounts (akin to an escrow account) on the platform and the fundraisers will only collect the money when the campaign is fully funded [Higgins (2014)]. Once the campaign reaches its funding target goal, the Bitcoin network will verify (i.e., due diligence) and release the funds to the fundraiser. Transactions will be verified by participating Bitcoin crypto-currency protocol for each campaign.

Buyers will be able to rescind their pledges or purchases of securities up until the campaign close date [Higgins (2014)] -- this also follows the same rules being utilized by all other crowdfunding platforms. And finally, Lighthouse will "double spend the funds back to the user's account, freeing them up for other uses" [Higgins (2014)].

Distributed decentralized solution

Despite the legal issues with Mt. Gox and more recently the security breach at the European Bitcoin exchange, Bitstamp [Popper and Ember (2015)], Bitcoin, which was hailed as an alternative payments system, faster and cheaper with a more secure infrastructure, is regaining its reputation. As a decentralized virtual currency, Bitcoin is not controlled by a central bank as is the U.S. dollar or British pound.

Bitcoins are created through a process called "mining". A coin is produced when the mining computer solves a mathematical problem set by the Bitcoin software. Bitcoin blocks are awarded to the computer or groups of computers that win the cryptographic challenges [Vaishampayan (2014)]. Bitcoin transactions are recorded in the "blockchain', a public computerized ledger, which is maintained by the miners. Anybody can see the blockchain via websites such as blockchain.info, although the blockchain does not reveal who has carried out the transaction. It is this combination of semi-transparency and privacy that appeals so much to many of its users. Mark Williams, Finance professor at Boston University, describes Bitcoins as "virtual currency and payment system intertwined" [Vaishampayan (2014)].

Another factor which differentiates Bitcoin from traditional currencies is the current inability to evaluate its performance and compare it against an appropriate benchmark [Scott (2014)]. By creating economic anchors, buyers and sellers will be able to determine when they are over- or under-paying for Bitcoin [Scott (2014)]. For example, consider buying an espresso at a chain in the U.S. versus buying the same in the same chain in the U.K. Was the difference in price driven only by the fluctuation in the foreign exchange rate? Or were there other factors that made the espresso in the U.S. $3 and in the U.K. £2.5? Equally you could compare the cost on a range of retail products either country to determine if you are paying fair market value.

Table 3. Guidelines for Investors and Companies

1 Who can use Bitcoins? Anyone can use Bitcoins to pay for goods and services online – there are plenty of outlets that will take them, both online and in the real world. Bitcoins are held in a 'digital wallet', either on your own machine or via an online provider, and transferred to the wallet of your payee. But proceed carefully, as with any investment, there are risks attached.	**4 Transactions (sending and receiving).** Personal computers, mobile devices or a web application is used to facilitate sending and receiving, using a Bitcoin wallet.
2 The first way to gain access to Bitcoin. Be a Bitcoin developer: compete to win Bitcoins via "mining," i.e., competing with other computers to solve algorithms. Winners of these challenges are rewarded payment in Bitcoin transaction fees or newly created Bitcoins.	**5 Small businesses like to accept payment in Bitcoins.** Why? They get paid straightaway, instead of having to wait for funds to clear via PayPal or other online payment methods.
3 The second way to gain access to Bitcoin. Set up a Bitcoin wallet and exchange fiat currency for products and services.	**6 Consumers (and businesses) like them too.** Why? Because there's no tax to pay on transactions and investors see Bitcoin as something of a safe haven, similar to gold. Generally, transaction fees are lower than the 2 - 3% fees imposed by credit card processors.

Source: Wales Capital, a leading strategy, risk management, and regulatory compliance consulting firm.

Market opportunity

Digital Assets

Blythe Masters a former JP Morgan banker has jumped into the fray as CEO of Digital Assets Holdings to tackle digital currency and claims to make trade settlement faster, cheaper and safer. Unlike other new entrants like the partnership formed Bloomberg and itBit, a Singapore-based firm, which "describes itself as a Bitcoin exchange for professionals" as well as the keeper of reliable deposit and withdrawals [Hajdarbegovic (2014)], Digital assets has no designs on being a trading business nor exchange.

Pantera Capital

Bitcoin-focused investment firm Pantera Capital has announced an index that enables investors to track Bitcoin over a medium-term timeframe [Cawrey (2014)]. Pantera Capital created the BitIndex, which has seven benchmark criteria [Cawrey (2014)]:

1. The GitHub development platform and interest of the developer community
2. Consumer and Merchant adoption rate
3. Bitcoin education, as measured by tracking the number of Wikipedia views.
4. Hashrate by "logarithmic scale corresponding to orders of magnitude"
5. Number of Bitcoin searches on Google
6. Number of wallets to quantify user adoption rate
7. Buyer and seller volume on the Bitcoin network

Pricing is not included in these criteria and unfortunately, ,Pantera is not disclosing how it calculates the merchant adoption metric, however, different sources such as Google, Wikipedia and GitHub provide statistics for hashrate, user adoption by wallets, and transaction volume [Cawrey (2014)].

The future of Bitcoin

It is too early to know Bitcoin's fate because it is not clear whether a central bank or other regulatory entity will govern it, a decision which may ultimately lead to its success or demise. However, even with this uncertainty, venture capitalists are gambling on Bitcoin's future and the adoption rate of Bitcoin continues to increase: a number of well-known retailers, including Overstock, Expedia and Dell, have started accepting Bitcoin for domestic sales through their websites over the past few months.

Two possible Bitcoin scenarios:

1. Bitcoin can be viewed as an e-commerce infrastructure solution.

Technology advances in social media, Web 3.0, will allow for "processes to deliver quick and responsive service, including live chat, self-service tools, and quick turnaround on questions and orders," [Traxler (2012)] while providing the lowest prices to evolve. This approach will drive further disruption in the financial markets to companies like Visa and Mastercard; Bitcoin could displace these types of companies by becoming the gateway for money transfer services [Scott (2014)]. In addition, once the market matures, Bitcoin technology could serve as a

value-add to crowdfunding platforms as way of reducing fees when transacting deals between buyers and sellers.

2. Bitcoin could become the anchor currency. It could take on a life of a "commodity reserve" monetary plan similar to what Thomas Edison proposed in 1922 [Sauser (2014); Hammes and Wills (2006)] and integrate with mobile banking and microfinance in regions such as Haiti or Africa. However, it does not need to be tied back specifically to agriculture, nor do 'interest free' loans have to be introduced. Rather, Bitcoin could be a freely traded security and currency across all commodities regardless of geographic location. Buyers and sellers could remain anonymous and smart technology could be developed to recognize pattern behaviors, which would alert the "crowd" and regulators to suspicious activities. It could provide tracking of transactions, management of documents, filings whether real estate, agriculture, oil and gas across the entire capital market.

Just imagine for a moment the implications to the market if Bitcoin's value were anchored to its use in a particular national economy that supplies a crucial global commodity.

Conclusion

The world is embarking upon a new economic revolution. Institutional market making may become a profession of the past as the democratization of capital is being driven more and more by retail investors. The catalyst for this phenomenon originated in the global economic recession. Unemployment, while going down, is till a problem, and interest rates remain at historic lows of almost zero percent while startup and emerging growth companies find it difficult to raise capital via traditional avenues.

Start-ups are major job creators (small firms created 65% of new jobs in the US between 1993 and 2009: OASBA (n.d.)), but they aren't getting the funding to remain operational. 2.5 billion people are unbanked [Chaia et al (2010)] while over 2 billion are living on less than $2 a day. With all of the global resources, it is hard to understand why the wealth disparity gap continues to increase in the 21st century with 1% of the population controlling over 50% of the world's wealth.

On April 5, 2012, President Barack Obama signed into legislation The Jumpstart Our Business Startups Act (JOBS Act), igniting a change to 80-year-old securities laws while spurring a changing of the guards globally and enabling the democratization of the capital markets. Technological advances such as Web 3.0, social capital, smartphones and mobile technology, and Bitcoin are fueling this economic revolution. This revolution is also known as "frictionless capitalism", a term coined by Bill Gates in 1994, in his book, The Road Ahead, which suggests a new generation of internet companies are innovating to find ways of reducing friction within the internet economy. I will take this thought one step further and propose that the internet is becoming the new industrial network where we can connect with one another directly allowing for advances in creating "frictionless labor markets."

Bitcoin is already driving the early stages of frictionless capitalism. A startup company, BitPesa, has launched a Bitcoin remittances company, which is different to M-Pesa, Kenya's mobile money system [Vigna (2014b)]. 15 Kenyans now living in London will pilot the scheme [Vigna (2014b)]; these individuals regularly send money back to their home countries via traditional remittance mechanisms. The participants will be using the Bitcoin platform to covert UK pounds into Bitcoins, which are then reconverted to Kenyan shillings at the other end [Vigna (2014b)]. The fees for BitPesa are 3%, much lower than the fees traditional remittance companies, such as Western Union, charge [Vigna (2014b)]. This could prove a win for all as there is a reduction in transaction fees, thereby placing more money in the pockets of local community people. This could spur business creation, job creation and ultimately decrease the wealth inequality gap.

Although remittance companies such as Western Union continue to dominate remittances globally, despite the high transactions fees, popular mobile money systems like M-Pesa, and start-ups like BitPesa, are positioned strategically to capitalize on the swift changes occurring across finance and technology.

As these examples show, a new economic revolution has the potential to disrupt social and capital norms. Every aspect of life will be transformed due to the interrelated nature of the ecosystem because increased activity in one part of the ecosystem spurs an increase in activity in others.

I conclude by arguing that all these developments, energized by the efforts of innovators and entrepreneurs, have the potential to radically transform the world in which we live, while promoting the core values of industrialized societies including democracy, capital formation, sustainability, and equality. A brave new world of business and finance, which is more equal and fairer, is just around the corner.

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